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★**Asymptotic behavior of dissipative systems.**

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Most of the issues in the modern theory of finite-dimensional dynamical systems have been obtained by marrying analysis and geometry (Poincare, Birkhoff, Lyapunov, Andronov, Smale, Arnold, etc. (see the book by J. Guckenheimer and P. Holmes, Nonlinear oscillations, dynamical systems and bifurcations of vector fields [Springer, New York, 1983; MR 85f:58002] and its references)). On the other hand e.g. physical problems lead one to the consideration of infinite-dimensional dynamical systems, mainly systems generated by partial differential equations (P.D.E.s) and also delay-differential equations (D.D.E.s). As a matter of fact, analytical results on nonlinear P.D.E.s comparable with those on O.D.E.s are quite recent. This may explain why geometric theory for infinite-dimensional dynamical systems is still in its infancy (D. Henry [Geometric theory of semilinear parabolic equations, Lecture Notes in Math., 840, Springer, Berlin, 1981; MR 83j:35084] wrote one of the first books pertaining to these questions). One of the main difficulties in that field is the lack of local compactness of the phase space, and some type of dissipativity property is needed in order to overcome this problem.

The goal (achieved) of this monograph is to show how many of the concepts of dynamical systems on locally compact spaces can be adapted to infinite-dimensional dynamical systems that are dissipative. This occupies 60 pages while the 120 remaining ones are devoted to various applications, including D.D.E.s and P.D.E.s. As quoted by the author, proving that an application fulfills the hypotheses of an abstract result is by no means an easy exercise and a rather detailed analysis is often required. Hence each application has its own interest.

Although advanced, this book is a very good introduction to the subject, and the reading of the abstract part, which is elegant, is pleasant. Applications cover a wide range and give to the reader a quite good idea of the power of the abstract theory. As stressed by the author, this book is not a treatise on the subject; for example, questions connected with Lyapunov exponents and inertial manifolds are not addressed [see, e.g., Equations aux derivees partielles non lineaires dissipatives et systemes dynamiques, edited by J. M. Ghidaglia and J. C. Saut, Hermann, Paris, 1988; MR 89a:35004; R. Temam, Infinite-dimensional dynamical systems in mechanics and

physics, Springer, New York, 1988; and references therein]. Also applications are sometimes restricted to model problems. Nevertheless this monograph will be of valuable interest for those who aim to learn in the very rapidly growing subject of infinite-dimensional dissipative dynamical systems. *Jean-Michel Ghidaglia* (Cachan)